

AMENDMENT AND RESPONSE

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Serial No.: 09/995,262

Filing Date: November 26, 2001

Attorney Docket No. 650.362US01

Title: ADAPTIVE MODULE FOR HOUSINGS

Listing of claims:

1. (Previously presented) An adaptive module for a housing for a cable modem termination system, the module comprising:

a backplane;

a card cage attachable to the housing, the housing being a non-redundant cable modem termination system housing;

an active first electronic module disposed within the card cage and electrically connected to the backplane, the active first electronic module electrically connectable to an active second electronic module disposed within the housing for communicating with the active second electronic module;

a backup first electronic module disposed within the card cage and electrically connected to the backplane, the backup first electronic module electrically connectable to a backup second electronic module disposed within the housing for communicating with the backup second electronic module when there is a failure within the active second electronic module; and

a switch/relay disposed within the card cage and electrically connected to the backplane, the switch/relay adapted to enable communication between the active first electronic module and the backup second electronic module when there is a failure within the active second electronic module.

2. (Original) The adaptive module of claim 1, wherein the active first electronic module comprises a plurality of connectors connectable to remote equipment.

3. (Original) The adaptive module of claim 1, wherein the switch/relay comprises a plurality of circuit boards.

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4. (Original) The adaptive module of claim 1, wherein the backplane is attachable to the housing.
5. (Original) The adaptive module of claim 1, wherein the backplane is disposed within the card cage.
6. (Previously presented) A housing for an electronic system comprising:
- a first module;
 - a first backplane disposed within the first module;
 - first and second electronic modules disposed within the first module, each of the first and second electronic modules electrically connected to the first backplane;
 - a second module attached to the first module, the second module comprising a second backplane;
 - a third electronic module disposed within the second module, the third electronic module electrically connected to the first electronic module and to the second backplane;
 - a fourth electronic module disposed within the second module, the fourth electronic module electrically connected to the second electronic module and to the second backplane; and
 - a switch/relay disposed within the second module and connected to the second backplane, the switch/relay adapted to selectively permit communication between the third electronic module and the second electronic module when there is a failure within the first electronic module.
7. (Original) The housing of claim 6, wherein first and second electronic modules are disposed within a card cage of the first module.

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8. (Original) The housing of claim 6, wherein the third and fourth electronic modules are disposed within a card cage of the second module.
9. (Original) The housing of claim 6, wherein the third electronic module comprises a plurality of connectors connectable to remote equipment.
10. (Original) The housing of claim 7, wherein the second backplane is attached to the card cage.
11. (Original) The housing of claim 8, wherein the second backplane is disposed within the card cage.
12. (Previously presented) A housing for an electronic system comprising:
- a first module comprising a first card cage;
 - a first backplane disposed within the first module;
 - first and second electronic modules disposed within the first card cage, each of the first and second electronic modules electrically connected to the first backplane;
 - a second module attached to the first module, the second module comprising a second backplane and a second card cage;
 - a third electronic module disposed within the second card cage, the third electronic module electrically connected to the first electronic module and to the second backplane;
 - a fourth electronic module disposed within the second card cage, the fourth electronic module electrically connected to the second electronic module and to the second backplane; and

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a switch/relay disposed within the second card cage and connected to the second backplane, the switch/relay adapted to selectively permit communication between the third electronic module and the second electronic module when there is a failure within the first electronic module.

13. (Original) The housing of claim 12, wherein the second backplane is attached to the first card cage.

14. (Original) The housing of claim 12, wherein the second backplane is disposed within the second card cage.

15. (Original) The housing of claim 12, wherein the third electronic module comprises a plurality of connectors connectable to remote equipment.

16. (Previously presented) A method for modifying a housing containing a non-redundant cable modem termination system to add redundancy to the non-redundant cable modem termination system, the method comprising:

attaching a backplane to the housing;

attaching a card cage to the housing;

inserting a first secondary electronic module into the card cage for electrically connecting the first secondary electronic module to the backplane and to a first primary electronic module of the non-redundant cable modem termination system;

inserting a second secondary electronic module into the card cage for electrically connecting the second secondary electronic module to the backplane and to a second primary electronic module of the non-redundant cable modem termination system;

inserting a switch/relay into the card cage for electrically connecting the switch/relay to the backplane, the switch/relay adapted to selectively switch operation from the first

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primary electronic module to the second primary electronic module of the non-redundant cable modem termination system when there is a failure within the first primary electronic module of the non-redundant cable modem termination system.

17. (Previously presented) The adaptive module of claim 1, wherein the active and backup first electronic modules are received in first slots within the card cage and circuit boards of the switch/relay are received in second slots of the card cage.

18. (Previously presented) The housing of claim 6, wherein the switch relay is disposed within a card cage of the second module.

19. (Previously presented) The housing of claim 6, wherein the first module is a housing for a non-redundant cable modem termination system.

20. (Previously presented) The housing of claim 12, wherein the third and fourth electronic modules are received in first slots within the second card cage and circuit boards of the switch/relay are received in second slots of the second card cage.

21. (Previously presented) The housing of claim 12, wherein the first module is a housing usable for a non-redundant cable modem termination system.

22. (Previously presented) The method of claim 16, wherein inserting the first and second secondary electronic modules into the card cage comprises inserting the first and second secondary electronic modules into first slots of the card cage and inserting the switch/relay into the card cage comprises inserting circuit boards of the switch/relay into second slots of the card cage.

23. (Previously presented) The method of claim 16, further comprising electrically connecting a plurality of connectors of the first secondary electronic module to remote equipment.

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24. (Previously presented) The method of claim 16, wherein attaching the secondary backplane to the housing comprises positioning the secondary backplane so that the secondary backplane is parallel to a primary backplane to which the first and second primary electronic modules of the non-redundant cable modem termination system are electrically connected.

25. (Previously presented) A method for manufacturing a housing for a redundant cable modem termination system, the method comprising:

- forming a module having a first backplane, a first card cage, and first and second electronic modules disposed within the first card cage and electrically connected to the first backplane;

- attaching a second backplane to the module;

- forming a second card cage;

- attaching the second card cage to the module;

- inserting third and fourth electronic modules into the second card cage to electrically connect the third and fourth electronic modules to the second backplane and to respectively electrically connect the third and fourth electronic modules to the first and second electronic modules; and

- inserting a switch/relay into the second card cage to electrically connect the switch/relay to the backplane, the switch/relay adapted to selectively permit communication between the second and third electronic modules when there is a failure within the first electronic module.

26. (Previously presented) The method of claim 25, wherein forming the module comprises forming a housing for a non-redundant cable modem termination system.

27. (Previously presented) The method of claim 25, wherein forming the second card cage comprises forming first slots and second slots in the second card cage.

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28. (Previously presented) The method of claim 25, wherein inserting the third and fourth electronic modules into the second card cage comprises inserting the third and fourth electronic modules into first slots of the card cage and inserting the switch/relay into the second card cage comprises inserting circuit boards of the switch/relay into second slots of the second card cage.

29. (Previously presented) A telecommunications system, comprising:

a housing;

a backplane, disposed within the housing, and adapted to receive a plurality of cards for providing services to a plurality of subscribers; and

wherein the housing is adapted to receive a an adaptive module to communicatively couple to one or more of the plurality of cards in the housing to add redundancy to the telecommunications system.

30. (Previously presented) The system of claim 29, wherein the module is adapted to engage a rear panel of the housing.

31. (Previously presented) The system of claim 29, wherein the module includes a relay/switch and the plurality of cards include at least one primary and at least one redundant card, the relay/switch selectively routes signals between the at least one redundant card and the inputs and outputs associated with the at least one primary card when the at least one primary card fails.

32. (Previously presented) The system of claim 29, wherein:

the plurality of cards includes a plurality of paired primary and secondary cards, further wherein at least one of the primary cards is used as a redundant primary card; and

a relay/switch that redirects signals between the redundant primary card and a secondary card associated with a failed primary card.

33. (Previously presented) A telecommunications system, comprising:

a housing;

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a backplane, disposed within the housing, and adapted to receive a plurality of electronic modules, each electronic module associated with inputs and outputs for providing services to a plurality of subscribers;

wherein the housing is adapted to receive an adaptive module to selectively, communicatively couple to the plurality of electronic modules in the housing; and

wherein when the adaptation module is received on the housing, one of the electronic modules is designated as a back-up electronic module, and wherein the adaptive module selectively routes signals between the back-up electronic module and the inputs and outputs associated with a primary electronic module upon failure of the primary electronic module, wherein the primary electronic module is one of the plurality of electronic modules.

34. (Previously presented) The system of claim 33, wherein the adaptation module comprises a relay/switch.

35. (Previously presented) The system of claim 33, wherein the plurality of electronic modules is associated with a second plurality of electronic modules to provide the inputs and outputs for the plurality of electronic modules.

36. (Previously presented) A method for providing redundancy in a telecommunication system, the method comprising:

providing a housing having a plurality of electronic modules designed to operate in a non-redundant configuration;

attaching an adaptive module to the housing to selectively communicate with the plurality of electronic modules; and

designating one of the electronic modules as a redundant electronic module to back-up the remaining electronic modules in a redundant configuration.

37. (Previously presented) The method of claim 36, wherein attaching an adaptive module comprises attaching a module including a relay/switch exterior to a backplane of the housing.

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38. (Previously presented) A telecommunications system, comprising:
- a housing;
 - a backplane, disposed within the housing, and adapted to receive a plurality of cards for providing services to a plurality of subscribers; and
 - a self-contained adaptive module adapted to plug into the housing to add redundancy to the telecommunications system.